Docket number: ARITH003

METHOD AND APPARATUS FOR NARROW TO VERY WIDE INSTRUCTION GENERATION FOR ARITHMETIC CIRCUITRY

Abstract

The invention includes a method and apparatus for generating a wide instruction controlling at least one data processing resource, local to that data processing resource, by accessing a local wide instruction memory based upon a narrow instruction, to generate at least part of the wide instruction. The local wide instruction memory can be accessed on every instruction cycle to reconfigure the controlled data processing resource(s). The data processing resources preferably includes arithmetic resources acting on the logarithms of various data inputs to generate a spectrum of non-additive results.

A preferred embodiment permits the narrow instruction to include a designator field, a first narrow field and a second narrow field. The designator field is used by the local wide instruction memories to select which of the first and second narrow fields to use in accessing the memory for controls of a specific resource. Use in a graphics shader with four datapath columns is shown. Another preferred use is shown in a DSP is also shown.